

## PATENT COOPERATION TREATY

PCT

## NOTIFICATION OF ELECTION

(PCT Rule 61.2)

From the INTERNATIONAL BUREAU

To:

Commissioner  
 US Department of Commerce  
 United States Patent and Trademark  
 Office, PCT  
 2011 South Clark Place Room  
 CP2/5C24  
 Arlington, VA 22202  
 ETATS-UNIS D'AMERIQUE  
 in its capacity as elected Office

|   |   |
|---|---|
| Date of mailing (day/month/year)<br>17 May 2001 (17.05.01)              |   |
| International application No.<br>PCT/EP00/08181                         | Applicant's or agent's file reference<br>SCB576PCT          |
| International filing date (day/month/year)<br>22 August 2000 (22.08.00) | Priority date (day/month/year)<br>26 August 1999 (26.08.99) |
| Applicant<br>GODI, Alessandro et al                                     |   |

1. The designated Office is hereby notified of its election made:

☒ in the demand filed with the International Preliminary Examining Authority on:  
 12 March 2001 (12.03.01)

☐ in a notice effecting later election filed with the International Bureau on:  
 \_\_\_\_\_

2. The election ☒ was  
☐ was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

|   |   |
|---|---|
| The International Bureau of WIPO<br>34, chemin des Colombettes<br>1211 Geneva 20, Switzerland<br>Facsimile No.: (41-22) 740.14.35 | Authorized officer<br>Olivia TEFY<br>Telephone No.: (41-22) 338.83.38 |
|---|---|

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# PATENT COOPERATION TREATY

## PCT

### INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

|  |  |  |   |
|--|--|--|---|
| Applicant's or agent's file reference<br><b>SCB576PCT</b>  | <b>FOR FURTHER ACTION</b>  |  | See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416) |
| International application No.<br><b>PCT/EP00/08181</b>   | International filing date ( <i>day/month/year</i> )<br><b>22/08/2000</b> | Priority date ( <i>day/month/year</i> )<br><b>26/08/1999</b> |   |
| International Patent Classification (IPC) or national classification and IPC<br><b>B32B13/00</b> |  |  |   |
| Applicant<br><b>QUARELLA S.P.A. et al.</b>   |  |  |   |

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.


2. This REPORT consists of a total of 8 sheets, including this cover sheet.

- ☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 5 sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☒ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☒ Certain observations on the international application

|   |  |
|---|--|
| Date of submission of the demand<br><br><b>12/03/2001</b>   | Date of completion of this report<br><br><b>03.12.2001</b>                                 |
| Name and mailing address of the international preliminary examining authority:<br><br> <b>European Patent Office</b><br><b>D-80298 Munich</b><br><b>Tel. +49 89 2399 - 0 Tx: 523656 epmu d</b><br><b>Fax: +49 89 2399 - 4465</b> | Authorized officer<br><br><b>Kanetakis, I</b><br><br>Telephone No. <b>+49 89 2399 8083</b> |



# INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/EP00/08181

## I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

### Description, pages:

|         |                     |            |                |            |
|---------|---------------------|------------|----------------|------------|
| 1,2,4,6 | as originally filed |            |                |            |
| 3,3A,5  | as received on      | 14/11/2001 | with letter of | 12/11/2001 |

### Claims, No.:

|     |                |            |                |            |
|-----|----------------|------------|----------------|------------|
| 1-9 | as received on | 14/11/2001 | with letter of | 12/11/2001 |
|-----|----------------|------------|----------------|------------|

### Drawings, sheets:

|     |                     |
|-----|---------------------|
| 1/1 | as originally filed |
|-----|---------------------|

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT**

International application No. PCT/EP00/08181

- ☐ the description, pages:  
☐ the claims, Nos.:  
☐ the drawings, sheets:

5. ☒ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

*(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)*

**see separate sheet**

6. Additional observations, if necessary:

**III. Non-establishment of opinion with regard to novelty, inventive step and industrial applicability**

1. The questions whether the claimed invention appears to be novel, to involve an inventive step (to be non-obvious), or to be industrially applicable have not been examined in respect of:

- ☐ the entire international application.  
☒ claims Nos. 7.

because:

- ☐ the said international application, or the said claims Nos. relate to the following subject matter which does not require an international preliminary examination (*specify*):
- ☒ the description, claims or drawings (*indicate particular elements below*) or said claims Nos. 7 are so unclear that no meaningful opinion could be formed (*specify*):  
**see separate sheet**
- ☒ the claims, or said claims Nos. 7 are so inadequately supported by the description that no meaningful opinion could be formed.
- ☐ no international search report has been established for the said claims Nos. .

2. A meaningful international preliminary examination cannot be carried out due to the failure of the nucleotide and/or amino acid sequence listing to comply with the standard provided for in Annex C of the Administrative Instructions:

- ☐ the written form has not been furnished or does not comply with the standard.  
☐ the computer readable form has not been furnished or does not comply with the standard.

**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

# INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/EP00/08181

## 1. Statement

|                               |      |        |         |
|-------------------------------|------|--------|---------|
| Novelty (N)                   | Yes: | Claims | 1-6,8-9 |
|                               | No:  | Claims |         |
| Inventive step (IS)           | Yes: | Claims | 1-6,8-9 |
|                               | No:  | Claims |         |
| Industrial applicability (IA) | Yes: | Claims | 1-6,8-9 |
|                               | No:  | Claims |         |

## 2. Citations and explanations. see separate sheet

## VIII. Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:  
see separate sheet

**Re Item I**

**Basis of the report**

Originally filed claims and description disclose

- a) that the multilayer slab product comprises a support layer,
- b) that the agglomerate contains already the binder (see, for example, claim 1 wherein the stone material agglomerate is defined as a granulate bound by means of a binding agent, and description on p. 3, l. 21-25; p.5, l. 10-12; p. 3, l. 28; p. 4, l. 4-8; p. 6, l. 14-16),
- c) that surface layer contains as binding phase a polyester resin (see p.5, l. 10-12; p. 3, l. 21-25).

Contrary to the originally filed disclosure, present claims 1-3 and 6 define

- a') that the multilayer slab product comprises at least one support layer,
- b') that the layers (2) and (3) contain agglomerate and a binding agent,
- c') that the binding phase of the surface layer can be any binding phase.

Said amendments a')-c') are not allowed because they go beyond the disclosure as filed.

Additionally, the omission of "under vacuum" to specify the step of vibro-compression in present process claim 6 is also an amendment which is not allowed, see originally filed claim 8 and p. 6, l. 23.

Additionally, present dependent process claim 7 corresponds to originally filed product claim 5. Since the step of immersion of the plurality of supports in the stone material agglomerate is not anymore compatible with the steps of the process according to independent claim 6, claim 7 will not be examined, since its subject-matter goes beyond the disclosure as filed. In the regional phase before the EPO, said claim 7 may be considered only if reinserted as product claim according to originally filed claim 5.

In the present Report, examination will be based on claim 1 as filed with telefax of 20.09.2001, namely claim 1 will read " Multi-layer composite slab product characterised by comprising a sandwich structure with two surface layers (3) of stone material agglomerate in form of granulate bound by means of a binding phase respectively on the lower and upper surfaces of one precast support layer (2) consisting of expanded material agglomerate". Present claims 2-4 will read without any reference to a binding

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EXAMINATION REPORT - SEPARATE SHEET**

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agent. Claim 5 remains.

Present claim 6 (process) appears to be based on originally filed claim 8 and the example on p. 6. It will read:

"A process for the preparation of a multi-layer composite slab product according to anyone of the previous claims, comprising the following steps:

- mixing of a mixture of stone chips in the selected grain size, powder and binder in the typical proportions required for the manufacturing of a stone material agglomerate;
- distribution of said stone material agglomerate in a mold or on a molding belt to form a first lower layer (3);
- positioning on said first layer (3) of at least one precast support (2) made of expanded material agglomerate;
- distribution of a further amount of said mixture on said at least one precast support (2) to form a second upper layer (3);
- vibro-compression under vacuum, in a single step, of said stone material agglomerate and of said at least one precast support (2);
- hardening of the mixture via thermal via thermal reaction;
- surface and perimetral finishing of the mold product."

Claim 8 is in order as long as it depends only on process claim 6. Claim 9 is in order.

**Re Item III**

**Non-establishment of opinion with regard to novelty, inventive step and industrial applicability**

see item I regarding the objection wrt present claim 7

**Re Item V**

**Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

Reference is made to the following documents:

D1: FR-A-2 136 862 (CERIC) 29 December 1972 (1972-12-29)

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EXAMINATION REPORT - SEPARATE SHEET**

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International application No. PCT/EP00/08181

D2: US-A-4 107 378 (BOURGUIGNON GUY CLEMENT ET AL) 15 August 1978  
(1978-08-15)

*Novelty (Art. 33(2) PCT)*

The subject-matter of claim 1 (product) is novel over both D1 and D2. In particular D1 does not define different materials in the support (2) and surface layers (3), and D2 discloses a two-layer composite.

The subject-matter of claim 6 (process) is novel over D2, which defines a different series of process steps.

The subject-matter of claim 9 (use) is novel over both D1 and D2.

*Inventive step (Art. 33(3) PCT)*

The problem to be solved by the present application is to provide a multilayer composite slab product which is light in weight in comparison with the prior art, see p. 3, l. 11-18.

The problem is solved experimentally by actually providing a layer of an agglomerate of expanded clay with polyester resin as binding agent (the support layer) sandwiched between two surface layers of agglomerated marble with polyester as a binding agent, see p. 3, l. 21-p. 4, l. 10; p. 5, l. 13-17.

Same technical effect (i.e. light weight) is provided by D2, because D2 discloses the use of expanded clay or other expanded material in order to reduce the weight of the plates, see D2: col. 5, l. 40-46. D2 will be then considered as closest prior art document. The difference between D2 and present claim 1 is that D2 discloses a 2-layer composite comprising a plate (the surface layer of the present application) and a base layer (the support layer of the present application), and the support (2) in the present application is precast.

This precast support (2) allows that a second upper surface layer (3) is positioned on (2), which cannot be envisaged with the process according to D2. The advantages of the present product are light-weight and the possibility to form a plurality of elements with a sandwich structure, which elements can be separated from each other by cutting to produce single elements, see present p. 4, l. 9-17. Said advantages are not



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International application No. PCT/EP00/08181

mentioned in any of the available documents. Hence, it appears that an inventive step may be acknowledged for claim 1. Since claim 1 is novel and inventive (under the reservations mentioned in item I) the process of claim 6 (under the reservations mentioned in item I) and the use according to claim 9 are also novel and inventive.

**Re Item VIII**

**Certain observations on the international application**

It is clear that in this application the term agglomerate would appear to define a granulate bound by a binding agent, see item I, supra. Hence any reference to a mixture of agglomerate and binding agent causes unclarity (Art. 6 PCT).

Upon entering the regional phase before the EPO a) the applicants are kindly requested to provide support in the originally filed disclosure of any amendments they wish to submit, and b) adaptation of the description to the claims may be deferred until an agreement is reached upon a patentable set of claims.

replace  
by art. 34  
WO 01/14133  
Amendment

CLAIMS

1. Multi-layer composite slab product characterised by comprising at least one surface layer (3) consisting of stone material agglomerate in form of granulate bound by means of a binding phase, and one precast support layer (2) consisting of expanded material agglomerate.

2. Multi-layer composite product according to claim 1, characterised by comprising a sandwich structure with two surface layers (3) of stone material agglomerate, respectively on the lower and upper surfaces of said intermediate support layer (2).

3. Multi-layer composite product according to claim 2, characterised by further comprising a lateral edge (30) consisting of agglomerate of the same stone material of said surface layers (3).

4. Multi-layer composite product according to claim 1, characterised by a composite or modular structure, with a plurality of support elements (2) of expanded material agglomerate, coated on at least one surface and separated by an agglomerate (3) of stone material.

5. Multi-layer composite product according to claim 4, wherein said supports (2) of expanded material agglomerate are immersed in said stone material agglomerate (3).

6. Multi-layer composite product according to any one of the previous claims, wherein said layer of stone material (30) is obtained by vibro-compression, optionally under vacuum, of marble powder or chips bound with polyester resin.

7. Multi-layer composite product according to any one of the previous claims, wherein said precast support layer (2) is obtained by vibro-compression under vacuum of granules of expanded clay bound with polyester resin.

8. A process for the preparation of a product of any one of the previous claims, comprising the following steps:

- positioning of at least one precast support (2) made of expanded material agglomerate in a mold or on a molding belt;
  - distribution of a stone material agglomerate (3) on at least one surface of said support (2), together with a binding phase;
  - 5 • vibro-compression under vacuum of said stone material agglomerate (3) and of said precast support (2).
9. A process according to claim 8; wherein said at least one precast support (2) is previously obtained by vibro-compression under vacuum from expanded clay granules bound with polyester resin.
- 10 10. Use of a product of claims 1-7 for the manufacture of floorings, internal walling and external cladding of residential and public buildings, and of furniture components.

the technology of the vibro-compressure under vacuum, for example in the more favourable case of use of polyester resin as binder, could comprise:

- 92% by weight of granulates and marble powder
- 8% by weight of polyester resin.

5 Due to the fact that the granulates or the marble powder have an average specific weight of  $2.7 \text{ kg/dm}^3$ , and the polyester resin has an average specific weight of  $1.1 \text{ kg/dm}^3$ , the resulting product, for example in the size of  $1 \text{ m}^2$  and  $3 \text{ cm}$  thickness, will have a theoretical specific weight of  $2.57 \text{ kg/dm}^3$  (slightly higher than the experimental value which generally ranges between  $2.49\text{-}2.50 \text{ kg/dm}^3$ )  
10 corresponding to a weight of  $77.1 \text{ kg}$ , which is too high in view of what mentioned.

Object of the invention is mainly to avoid the disadvantage of the high weight of the products made of stone chips, manufactured by the technology of the vibro-compressure under vacuum, making a product noticeably lighter and which maintains substantially the technical and aesthetical properties of the above  
15 mentioned products.

This objective is obtained, according to the invention, by means of a product which shows the characteristics of the attached independent claim 1 and by a procedure which presents the characteristics of the attached dependent claim 8.

20 Advantageous applications of the present invention are shown in the dependent claims.

Mainly, the product according to the invention, has at least a surface layer obtained by vibro-compressure, consisting of an agglomerate, for example obtained from marble powder chips bound by polyester resin, and a precast support, for example obtained again by vibro-compressure under vacuum, consisting of chips of  
25 expanded clay bound by polyester resin.

Preferably, the product according to the invention has a sandwich structure, where the expanded clay precast support makes up the intermediate layer, and two surface layers of agglomerate provided, one on the top and one under the

## PATENT COOPERATION TREATY

## PCT

## INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

|   |   |  |
|---|---|--|
| Applicant's or agent's file reference<br><b>SCB576PCT</b> | <b>FOR FURTHER ACTION</b> see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below. |  |
| International application No.<br><b>PCT/EP 00/ 08181</b>  | International filing date (day/month/year)<br><b>22/08/2000</b>   | (Earliest) Priority Date (day/month/year)<br><b>26/08/1999</b> |
| Applicant<br><b>QUARELLA S.P.A. et al.</b>                |   |  |

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 3 sheets.



It is also accompanied by a copy of each prior art document cited in this report.

**1. Basis of the report**

- a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.



the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

- b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing :



contained in the international application in written form.



filed together with the international application in computer readable form.



furnished subsequently to this Authority in written form.



furnished subsequently to this Authority in computer readable form.



the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.



the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. ☐ **Certain claims were found unsearchable** (See Box I).

3. ☐ **Unity of invention is lacking** (see Box II).

**4. With regard to the title,**

the text is approved as submitted by the applicant.



the text has been established by this Authority to read as follows:

**MULTI-LAYER SLAB PRODUCT MADE OF STONE GRANULATES AND RELATIVE MANUFACTURING PROCESS.**

**5. With regard to the abstract,**

the text is approved as submitted by the applicant.



the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

**6. The figure of the drawings to be published with the abstract is Figure No.**

as suggested by the applicant.



because the applicant failed to suggest a figure.



because this figure better characterizes the invention.



None of the figures.

A. CLASSIFICATION OF SUBJECT MATTER  
IPC 7 B32B13/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)  
IPC 7 B32B E04C C04B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, PAJ, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category * | Citation of document, with indication, where appropriate, of the relevant passages  | Relevant to claim No. |
|------------|---|-----------------------|
| X          | FR 2 136 862 A (CERIC)<br>29 December 1972 (1972-12-29)<br>claims 1,6-10<br>page 2, line 6 - line 14<br>page 3, line 7 - line 25<br>page 4, line 15 - line 26 | 1,10                  |
| A          | US 4 348 452 A (PAOLO PECCENINI ET AL)<br>7 September 1982 (1982-09-07)<br>claim 1<br>column 1, line 15 - line 27<br>column 4, line 34 - line 40              | 1-10                  |
| A          | GB 2 224 283 A (DALLA VALLE ROBERTO)<br>2 May 1990 (1990-05-02)<br>claims 1,3,15,16<br>example 1  | 1-10                  |

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

\* Special categories of cited documents:

- \*A\* document defining the general state of the art which is not considered to be of particular relevance
- \*E\* earlier document but published on or after the international filing date
- \*L\* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- \*O\* document referring to an oral disclosure, use, exhibition or other means
- \*P\* document published prior to the international filing date but later than the priority date claimed

- \*T\* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- \*X\* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- \*Y\* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- \*&\* document member of the same patent family

Date of the actual completion of the international search

17 November 2000

Date of mailing of the international search report

05/12/2000

Name and mailing address of the ISA

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Authorized officer

Girard, S

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

| Category * | Citation of document, with indication, where appropriate, of the relevant passages                | Relevant to claim No. |
|------------|---|-----------------------|
| A          | US 4 107 378 A (BOURGUIGNON GUY CLEMENT ET AL) 15 August 1978 (1978-08-15)<br>claims 1,6<br>----- | 1-10                  |

## INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/EP 00/08181

| Patent document<br>cited in search report |   | Publication<br>date | Patent family<br>member(s) |            | Publication<br>date |
|---|---|---------------------|----------------------------|------------|---------------------|
| FR 2136862                                | A | 29-12-1972          | NONE                       |            |                     |
| <hr/>                                     |   |                     |                            |            |                     |
| US 4348452                                | A | 07-09-1982          | IT                         | 1097228 B  | 26-08-1985          |
|   |   |                     | AT                         | 3122 T     | 15-05-1983          |
|   |   |                     | BR                         | 7904560 A  | 25-03-1980          |
|   |   |                     | DE                         | 2901372 A  | 24-01-1980          |
|   |   |                     | EP                         | 0010121 A  | 30-04-1980          |
|   |   |                     | ES                         | 482464 A   | 16-02-1980          |
|   |   |                     | GR                         | 70264 A    | 02-09-1982          |
|   |   |                     | HU                         | 180508 B   | 28-03-1983          |
|   |   |                     | JP                         | 55037392 A | 15-03-1980          |
|   |   |                     | US                         | 4268574 A  | 19-05-1981          |
| <hr/>                                     |   |                     |                            |            |                     |
| GB 2224283                                | A | 02-05-1990          | NONE                       |            |                     |
| <hr/>                                     |   |                     |                            |            |                     |
| US 4107378                                | A | 15-08-1978          | FR                         | 2321989 A  | 25-03-1977          |
|   |   |                     | BE                         | 844632 A   | 16-11-1976          |
|   |   |                     | DE                         | 2636618 A  | 10-03-1977          |
|   |   |                     | JP                         | 52028558 A | 03-03-1977          |
| <hr/>                                     |   |                     |                            |            |                     |